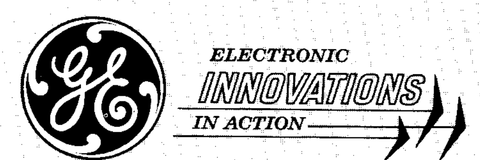


—PRODUCT INFORMATION—

6GK6

Beam Pentode

TUBES

FOR AF POWER AMPLIFIER APPLICATIONS

The 6GK6 is a general-purpose power pentode that may be used either in audio output amplifier or video power output amplifier stages of television receivers.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

Heater Characteristics and Ratings

Heater Voltage, AC or DC★	6.3±0.6	Volts
Heater Current♦	0.76	Amperes
Direct Interelectrode Capacitances, approximate●		
Grid Number 1 to Plate: (g1 to p), maximum	0.14	pf
Input: g1 to (h + k + g2 + g3 + i.s.)	10	pf
Output: p to (h + k + g2 + g3 + i.s.)	7.0	pf

MECHANICAL

Operating Position - Any
Envelope - T-6½, Glass
Base - E9-1, Small Button 9-Pin
Outline Drawing - EIA 6-4

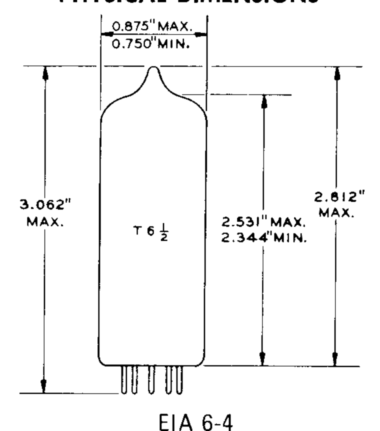
Maximum Diameter	0.875	Inches
Minimum Diameter	0.750	Inches
Maximum Over-all Length	3.062	Inches
Maximum Seated Height	2.812	Inches

MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES

Plate Voltage	330▲	Volts
Screen Voltage	330	Volts
Negative DC Grid-Number 1 Voltage	100	Volts
Plate Dissipation	13.2▲	Watts
Screen Dissipation, Average	2.0	Watts
Screen Dissipation, Peak	4.0	Watts
DC Cathode Current	65	Milliamperes
Heater-Cathode Voltage		
Heater Positive with respect to Cathode	100	Volts
Heater Negative with respect to Cathode	100	Volts
Grid-Number 1 Circuit Resistance		
With Fixed Bias	0.3	Megohms
With Cathode Bias	1.0	Megohms

PHYSICAL DIMENSIONS

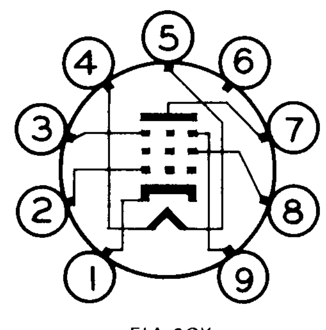


EIA 6-4

TERMINAL CONNECTIONS

Pin 1 - Cathode
Pin 2 - Grid Number 1
Pin 3 - Internal Shield and Grid Number 3 (Suppressor)
Pin 4 - Heater
Pin 5 - Heater
Pin 6 - No Connection
Pin 7 - Plate
Pin 8 - Grid Number 2 (Screen)
Pin 9 - Internal Shield and Grid Number 3 (Suppressor)

BASING DIAGRAM



EIA 9GK



MAXIMUM RATINGS (Cont'd)

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.

CHARACTERISTICS AND TYPICAL OPERATION

CLASS A_1 AMPLIFIER

Parameter	Value	Unit
Plate Voltage	250	Volts
Screen Voltage	250	Volts
Grid-Number 1 Voltage	−7.3	Volts
Plate Resistance, approximate	38000	Ohms
Transconductance	11300	Micromhos
Zero-Signal Plate Current	48	Milliamperes
Zero-Signal Screen Current	5.5	Milliamperes
Load Resistance	5200	Ohms
Total Harmonic Distortion, approximate	10	Percent
Maximum-Signal Power Output	5.7	Watts
Amplification Factor of Grid Number 2 with respect to Grid Number 1, zero signal	19	

PUSH-PULL AMPLIFIER, VALUES FOR TWO TUBES

Parameter	Class AB		Class B		Unit
Plate Voltage	250	300	250	300	Volts
Screen Voltage	250	300	250	300	Volts
Cathode-Bias Resistor	130	130	---	---	Ohms
Grid-Number 1 Voltage	---	---	−11.6	−14.7	Volts
Peak AF Grid-to-Grid Voltage	22.4	28	22.4	28	Volts
Zero-Signal Plate Current	62	72	20	15	Milliamperes
Maximum-Signal Plate Current	75	92	75	92	Milliamperes
Zero-Signal Screen Current	7.0	8.0	2.2	1.6	Milliamperes
Maximum-Signal Screen Current	15	22	15	22	Milliamperes
Effective Load Resistance, Plate-to-Plate	8000	8000	8000	8000	Ohms
Total Harmonic Distortion	3.0	4.0	3.0	4.0	Percent
Maximum-Signal Power Output	11	17	11	17	Watts

NOTES

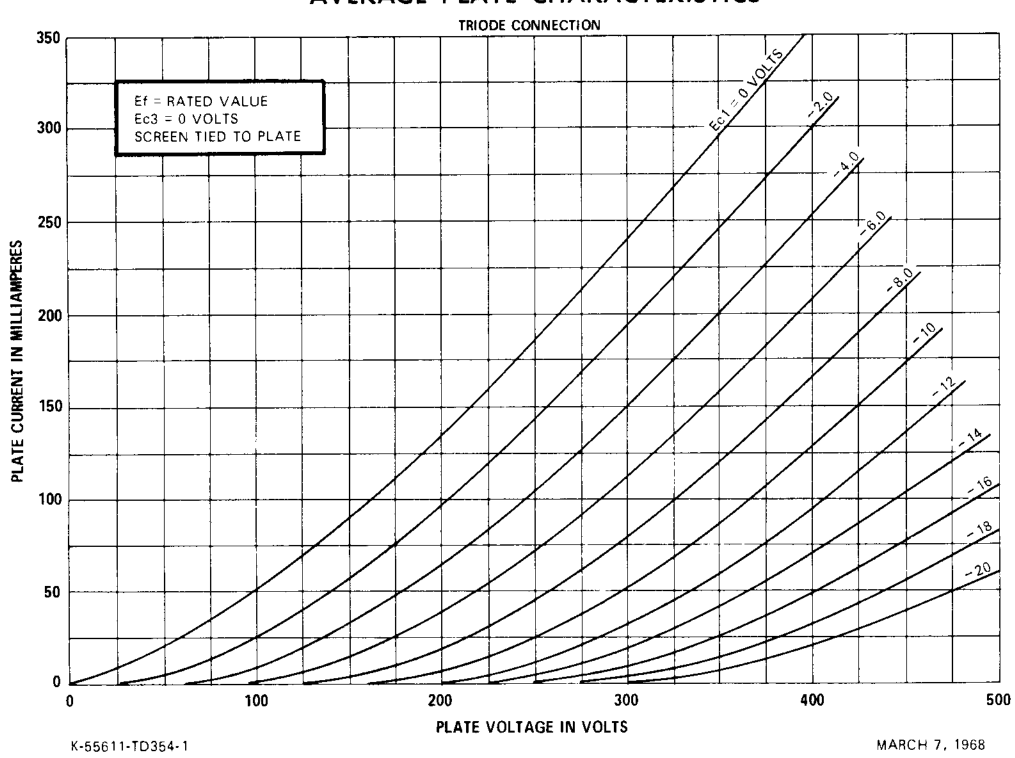
★ The equipment designer should design the equipment so that heater voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater voltage within the specified tolerance.

♦ Heater current of a bogey tube at Ef = 6.3 volts.

● Without external shield.

▲ When the heater and positive voltage are obtained from a storage battery by means of a vibrator, the maximum values of plate and screen voltages are 275 volts and the plate dissipation is 9.9 watts.

AVERAGE PLATE CHARACTERISTICS



AVERAGE PLATE CHARACTERISTICS

Ef = RATED VALUE
Ec2 = 250 VOLTS
Ec3 = 0 VOLTS

Ib @ Ec1 = 0 VOLTS
-2.0
-4.0
-6.0
-8.0
-10
-12

Ic2 @ Ec1 = 0 VOLTS
-2.0
-4.0
-6.0
-8.0
-10
-12

PLATE CURRENT (Ib) IN MILLIAMPERES

0 50 100 150 200

SCREEN CURRENT (Ic2) IN MILLIAMPERES

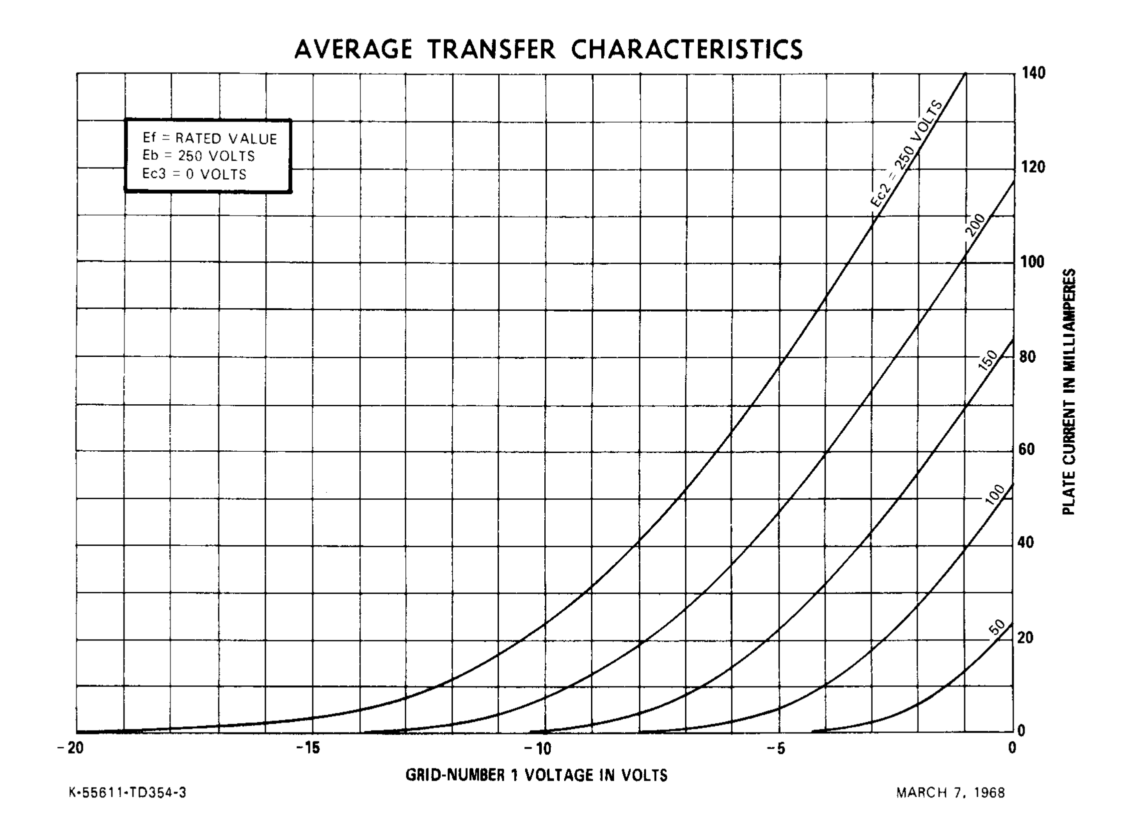
0 10 20 30 40 50

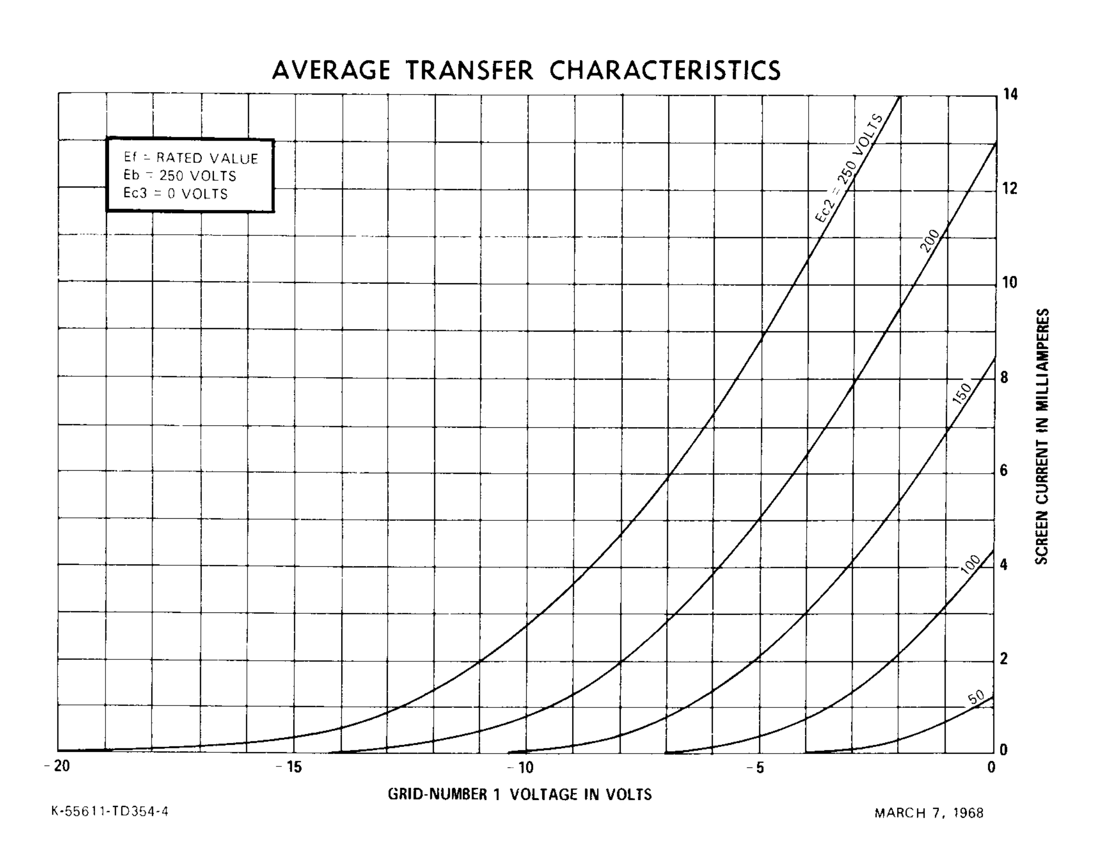
PLATE VOLTAGE IN VOLTS

0 100 200 300 400 500

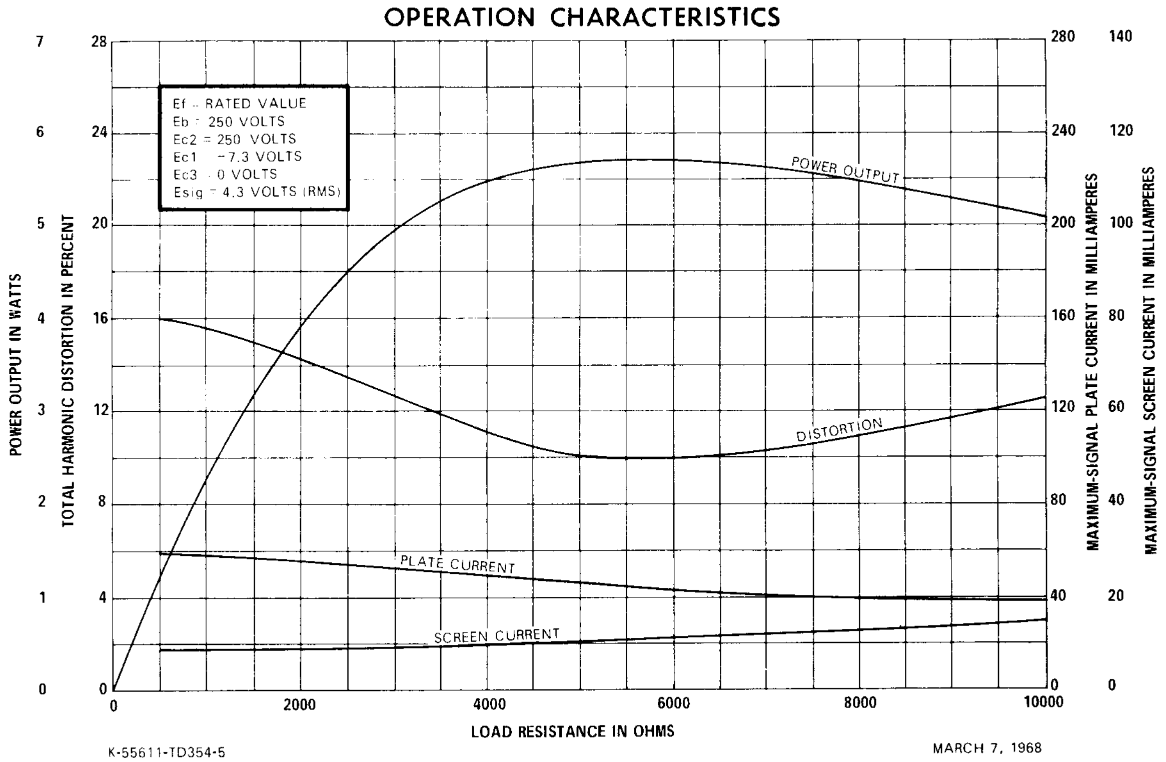
K-55611-TD354-2

MARCH 7, 1968


AVERAGE TRANSFER CHARACTERISTICS
Ef = RATED VALUE
Eb = 250 VOLTS
Ec3 = 0 VOLTS
Ec2 = 250 VOLTS
200
150
100
50
140
120
100
80
60
40
20
0
PLATE CURRENT IN MILLIAMPERES
-20
-15
-10
-5
0
GRID-NUMBER 1 VOLTAGE IN VOLTS
K-55611-TD354-3
MARCH 7, 1968


AVERAGE TRANSFER CHARACTERISTICS
Ef = RATED VALUE
Eb = 250 VOLTS
Ec3 = 0 VOLTS
Ec2 = 250 VOLTS
200
150
100
50
14
12
10
8
6
4
2
0
SCREEN CURRENT IN MILLIAMPERES
-20
-15
-10
-5
0
GRID-NUMBER 1 VOLTAGE IN VOLTS
K-55611-TD354-4
MARCH 7, 1968

OPERATION CHARACTERISTICS



OPERATION CHARACTERISTICS

Ef = RATED VALUE
Eb = 250 VOLTS
Ec2 = 250 VOLTS
Ec1 = -7.3 VOLTS
Ec3 = 0 VOLTS
R_L = 5200 OHMS

PLATE CURRENT
DISTORTION
POWER OUTPUT
SCREEN CURRENT

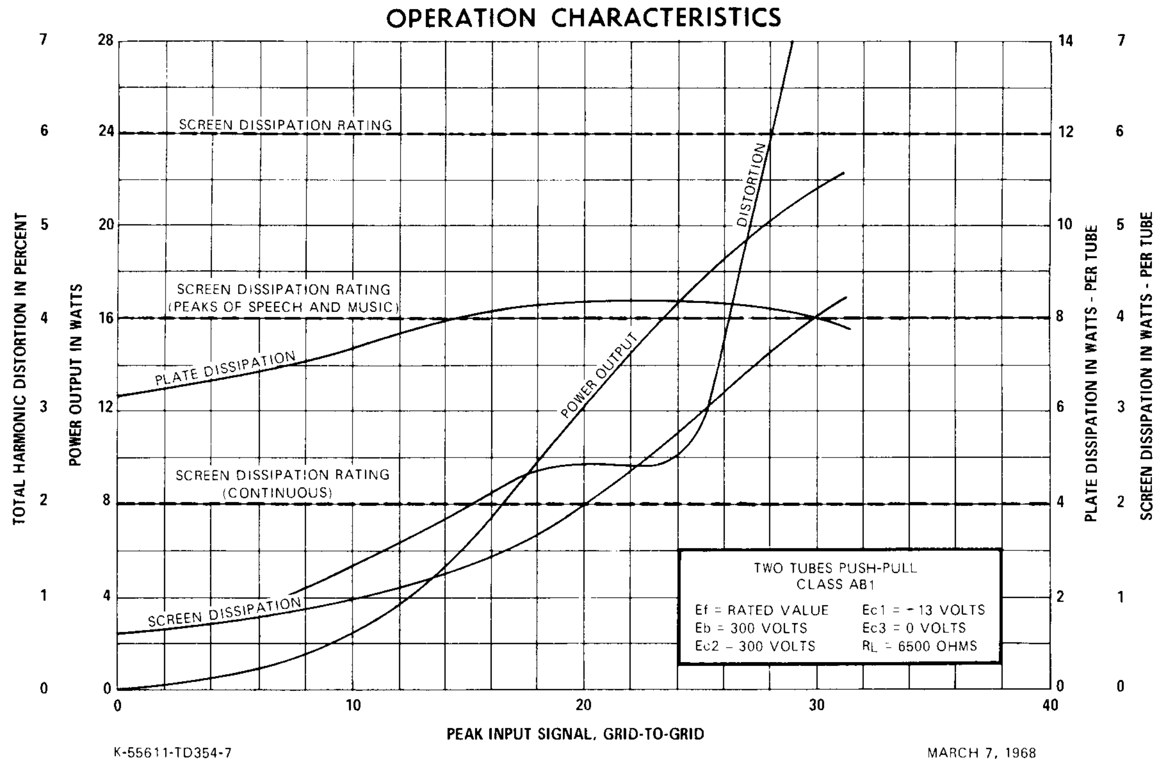
POWER OUTPUT IN WATTS
TOTAL HARMONIC DISTORTION IN PERCENT
MAXIMUM-SIGNAL PLATE CURRENT IN MILLIAMPERES
MAXIMUM-SIGNAL SCREEN CURRENT IN MILLIAMPERES

INPUT SIGNAL IN VOLTS (RMS)

K-55611-TD354-6

MARCH 7, 1968

OPERATION CHARACTERISTICS



TUBE DEPARTMENT


GENERAL ELECTRIC

Owensboro, Kentucky 42301